
ELIZABETH ANNE SIGWORTH WESTERBERG

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ORCID: 0000-0002-0865-0265 ◊ DOB: Sep. 19th, 1993 ◊ USA Citizen ◊ Married (née Sigworth)

SKILLS

Analytical expertise	Bayesian analyses, descriptive statistics, EHRs, hypothesis testing, meta-analyses, network analyses, regression modeling strategies, survival analyses, simulation studies
Coding languages	R (dplyr, ggplot2, etc.), Python (numpy, pandas, scikit-learn), SQL, Stata, SLURM, bash, L ^A T _E X, Beamer, Markdown
Data platforms & tools	Exasol, Google BigQuery, PostgreSQL, Redshift, RMarkdown, Tableau, Jupyter, Excel, GitHub, RStudio Server, JIRA, Confluence

EDUCATION

Vanderbilt University <i>Nashville, TN, USA</i>	<i>Aug. 2016 - Dec. 2022</i>
Ph.D. Biostatistics Department of Biostatistics, Vanderbilt Graduate School Dissertation: Improving Inferential and Computational Efficiency for Real-World Data Advisor: Qingxia Chen, Ph.D.	
Saint Olaf College <i>Northfield, MN, USA</i>	<i>Aug. 2012 - May 2016</i>
B.A. Mathematics, Concentration Statistics	

EXPERIENCE

Medical Economics Analyst <i>Wayspring (formerly axialHealthcare)</i>	<i>June 2018 - Present</i>
<ul style="list-style-type: none">· Performed savings analyses for clients with sensitive data (medical claims and member demographics)· Collaborated across departments, authored executive reports, and presented in client-facing meetings· Utilized time-series trend forecasting, risk-adjustment, and propensity-score designs in reporting· Coded automated in-house implementation of risk adjustment methodology in R and SQL· Began as intern in June 2018, with responsibilities shifted to part-time analyst level in May 2020	
Ph.D. Candidate <i>Dept. of Biostatistics, Vanderbilt University</i>	<i>Aug. 2016 - Dec. 2022</i>
<ul style="list-style-type: none">· Developed Bayesian meta-analytic method guiding medication switching, focused on chemotherapy· Extensive experience with survival analysis, particularly time-dependent coefficients· Completed coursework in mathematics, probability theory, computing, and statistical modeling	
Grad. Research Asst. <i>Dept. of Biomedical Informatics, Vanderbilt University</i>	<i>Jan. 2018 - Dec. 2022</i>
<ul style="list-style-type: none">· Focused on oncology data using clinical trial data, electronic health records, and genetic data· Performed meta- and network analyses on clinical trial publishing and co-authorship· Collaborated with clinicians for analyses, manuscript publication, and conference presentations· Dedicated effort towards NIH grant 1U24CA194215	
Neuroscience Collaborator <i>Vanderbilt Brain Institute</i>	<i>June 2019 - Dec. 2021</i>
<ul style="list-style-type: none">· Devised statistical modeling strategies for cognitive neurophysiological datasets via Bayesian methods· Coauthored high impact manuscript in multidisciplinary journal (see PNAS 2021 below)· Provided ongoing statistical consultation and education to groups at the Vanderbilt Brain Institute	

COMMITTEES AND MEMBERSHIPS

Biostatistics Graduate Student Association	<i>Aug. 2016 - Nov. 2022</i>
<ul style="list-style-type: none">· Vice President August 2019 - May 2021· Secretary August 2018 - May 2019	
American Statistical Association	<i>Aug. 2016 - Present</i>
Eastern North American Region	<i>March 2018 - Present</i>

TEACHING EXPERIENCE

Graduate Teaching Assistant | *Dept. of Biostatistics, Vanderbilt University*

· Advanced Regression Analysis II (GLMs and Longitudinal Data Analysis)

Spring 2020

· Applied Survival Analysis

Fall 2019, Fall 2020

· Advanced Probability and Real Analysis Concepts

Fall 2018

SELECTED HONORS AND AWARDS

Commodore Award in Biostatistics [↗](#)

Sept. 2019

American Statistical Association Leadership Challenge [↗](#)

June 2019

PUBLICATIONS

**Denotes Equal Contribution*

Westerberg, E.A.S., Tao, R. and Chen, Q. (2022) Efficient estimation of the Cox model with time-varying effects under two-phase designs. Manuscript in preparation.

Westerberg, E.A.S., Tao, R. and Chen, Q. (2022) An empirical comparison of methods for efficiently estimating time-varying effects in the Cox model. Manuscript in preparation.

***Sigworth, E.A.**, ***Rubinstein, S.M.**, Warner, J.L., Chen, Y., and Chen, Q. (2022) Building a dose toxo-equivalence model from a Bayesian meta-analysis of published clinical trials. *Annals of Applied Statistics*, revision under review.

Nelson, S.D., McCoy, A.B., Rector, H., Teare, A.J., Barrett, T.W., **Sigworth, E.A.**, Chen, Q., et al. (2022) Assessment of a naloxone coprescribing alert for patients at risk of opioid overdose: a quality improvement project. *Anesthesia & Analgesia*, 10-1213. [DOI](#) | [PMID](#) | [PDF](#)

Sigworth, E.A., Rubinstein, S.M., Chaugai, S., Rivera, D.R., Walker, P.D., Chen, Q., and Warner, J.L. (2022) Development of a bayesian toxo-equivalence model between docetaxel and paclitaxel. *iScience*, 25(4):104045. [DOI](#) | [PMID](#) | [PDF](#)

Westerberg, J.A., **Sigworth, E.A.**, Schall, J.D., and Maier, A. (2021) Pop-out search instigates beta-gated feature selectivity enhancement across V4 layers. *Proceedings of the National Academy of Sciences*, 118(50):e2103702118. [DOI](#) | [PMID](#) | [PDF](#)

Andreadis, K., Chan, E., Park, M., Benda, N.C., Sharma, M.M., Demetres, M., Delgado, D., **Sigworth, E.A.**, et al. (2021) Imprecision and preferences in interpretation of verbal probabilities in health: a systematic review. *Journal of General Internal Medicine*, 36:3820–3829. [DOI](#) | [PMID](#) | [PDF](#)

***Sigworth, E.A.**, ***Li, X.**, ***Wu, A.H.**, Behrens, J., Etemad, S.A., Nagpal, S., Go, R.S., Wuichet, K., Chen, E.J., Rubinstein, S.M., et al. (2020) Seven decades of chemotherapy clinical trials: a pan-cancer social network analysis. *Nature Scientific Reports* 10(1):1-13. [DOI](#) | [PMID](#) | [PDF](#)

Rubinstein, S.M., **Sigworth, E.A.**, Etemad, S., Martin, R.L., Chen, Q. and Warner, J.L. (2019) Indication of measures of uncertainty for statistical significance in abstracts of published oncology trials: a systematic review and meta-analysis. *JAMA Network Open* 2(12):e1917530. [DOI](#) | [PMID](#) | [PDF](#)

SELECTED TALKS AND ABSTRACTS

Sigworth, E.A., Rubinstein, S.M., Warner, J.L., Chen, Y., and Chen, Q. (2022) Building a dose toxo-equivalence model from a Bayesian meta-analysis of published clinical trials. ENAR - invited talk.

Sigworth, E.A., Niu, X., Chen, Q., Warner, J.L., Wuichet, K., Chaugai, S., and Dai, Q. (2019) Real world investigation of hypermagnesemia in the setting of platinum exposure. ITCR Annual Meeting - poster.

Sigworth, E.A. and Shotwell, M. (2018) A simultaneous PK/PD model for muscle relaxant using muscle twitch counts. Women in Statistics and Data Science - invited talk.

Sigworth, E.A. and Shotwell, M. (2018) A simultaneous PK/PD model for muscle relaxant using muscle twitch counts. Joint Statistical Meetings - poster.